



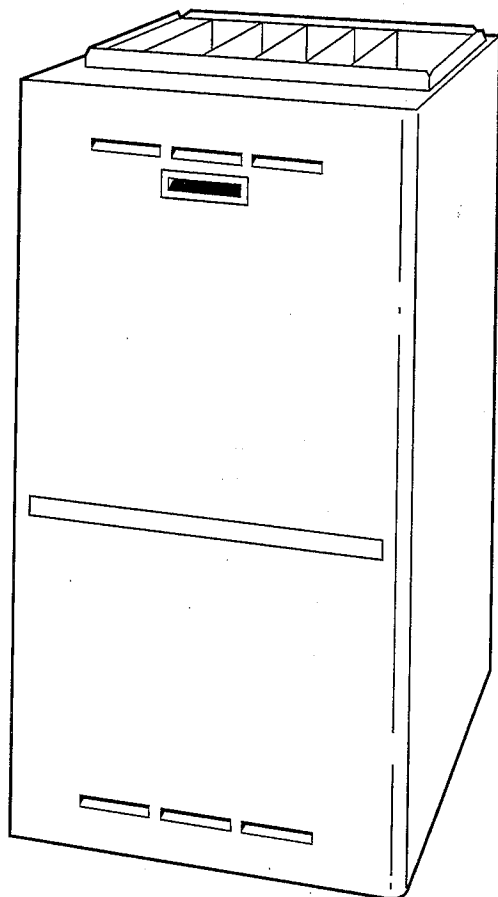
Payne
Air Conditioning

Indianapolis, IN

MULTIPOISE 4-WAY FIXED-CAPACITY GAS-FIRED CONDENSING FURNACE

MODEL 490AAV

Sizes 040 through 120
Series A



MULTIPOISE 4-WAY GAS-FIRED CONDENSING FURNACE

The Payne 490AAV Furnaces utilize a 4-way multipoise design to allow 1 unit to be installed in upflow, downflow, horizontal left, or horizontal right applications. Using condensing furnace technology, the Payne 490AAV is a high-efficiency gas furnace that achieves 91.5% Annual Fuel Utilization Efficiency (AFUE). The combination of high efficiency and flexibility of a 4-way multipoise design make the 490AAV a must for your product line. Proven, reliable hot surface ignition, a microprocessor control center, and a sealed combustion system will provide years of dependable service and a good value to the consumer.

FEATURES

Multipoise 4-Way Design—Allows a 490AAV model to be installed in an upflow, downflow, or horizontal orientation.

The model 490AAV is available in 10 heat/airflow combinations and, when combined with the 4-way design, allows for 40 different application types.

Sealed Combustion (Direct Vent) System—Enclosed burner assembly isolates operating noise without the expense of sound deadening devices. The sealed combustion (direct vent) system

brings outdoor air directly into the combustion chamber, cutting cold air infiltration into the structure and reducing heat loss.

3-Pass Primary Heat Exchangers—This design accelerates heat transfer and extracts heat that conventional heat exchangers waste up the flue. The primary heat exchanger is made of aluminized steel for corrosion resistance.

Flow-Through Secondary Heat Exchangers—Each cell is laminated with our patented Everlastic™ Polypropylene for greater resistance to corrosion. This breakthrough in heating technology helps extend the life of the furnace for years of dependable performance. The heat exchanger is positioned in the furnace to extract additional heat from the combustion products regardless of furnace orientation.

Warranty—Limited Lifetime Warranty on the heat exchangers for the lifetime of the original owner in single family residence; 20 years in other residential and commercial applications. Contact your dealer for details. Three-year Warranty on microprocessor control, hot surface ignitor, and inducer motor.

Monoport Inshot Burners—Produce precise air-to-gas mixture which gives a clean burn. The large monoport on the inshot (or injection-type) burners seldom, if ever, need cleaning.

Microprocessor Control Center—The printed-circuit board and all internal wiring are factory installed. Convenient terminals permit quick connection of a thermostat, a humidifier, an air cleaner, and air conditioning control circuits.

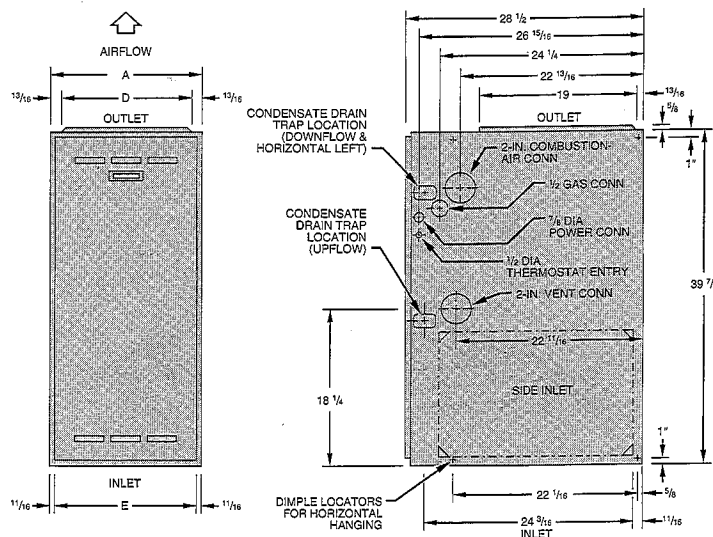
The control has adjustable blower off delay switches. As an added feature, the control has a built-in status indicator and self-test feature. The status indicator flashes to indicate a problem condition and assists the servicer in diagnosis. The component test allows for a complete check of the control circuits in only seconds.

Combustion Air and Ventilation—The 490AAV advanced design allows Schedule 40PVC, PVC-DWV, SDR-21 PVC, SDR-26 PVC (not approved in Canada), ABS-DWV, or ABS-F628 Schedule 40 pipe to bring outdoor air into the furnace for combustion. The extracted heat lowers the temperature of the combustion products (typically below 115°F) to a point that PVC pipe can also be used for venting combustion products outside the structure. The combustion-air and vent pipes can terminate through a side wall or through the roof when using 1 of our approved vent termination kits.

Fully-Insulated Casing—Foil-faced insulation in the heat exchanger section cuts the heat loss, and insulation in the blower section reduces noise levels. The casing also has the required openings for left- or right-side connection of gas, electric, drain, and vent connections.

Certifications—The 490AAV units are A.G.A. and C.G.A. design certified for use with natural and propane gases, as well as GAMA efficiency rating certified. The Payne 490AAV exceeds California minimum seasonal efficiency requirements by a wide margin, and meets the oxides of nitrogen (NO_x) emission levels set by South Coast and Bay Area Air Quality Management Districts in California.

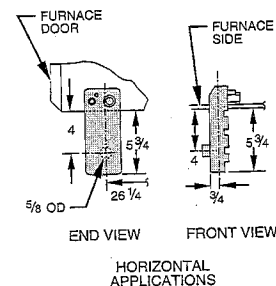
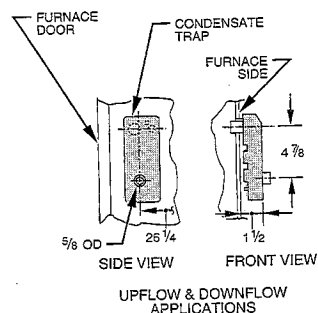
Form No. PDS 490A.40.1P



1. For 800 cfm--16-in. round or 14-1/2 x 12-in. rectangle
2. For 1200 cfm--20-in. round or 14-1/2 x 19-1/2 in. rectangle
3. For 1600 cfm--22-in. round or 14-1/2 x 23-1/4 in. rectangle
4. For airflow requirements above 1800 cfm, use both side inlets, a combination of 1 side inlet and the bottom, or the bottom only.

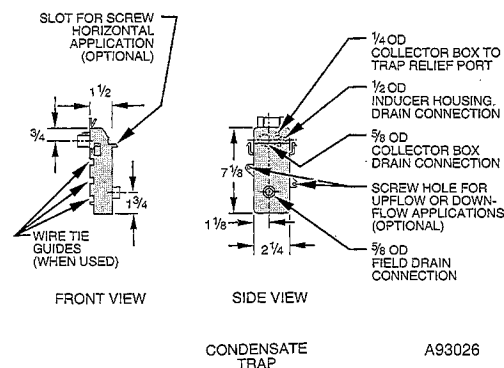
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UNIT SIZE	A	D	E	SHIP WEIGHT
024040	17-1/2	15-7/8	16	149
036040	17-1/2	15-7/8	16	152
036060	17-1/2	15-7/8	16	163
048060	17-1/2	15-7/8	16	166
036080	17-1/2	15-7/8	16	172
048080	21	19-3/8	18-1/2	175
060080	21	19-3/8	18-1/2	197
048100	21	19-3/8	18-1/2	193
060100	21	19-3/8	18-1/2	196
060120	24-1/2	22-7/8	22	228



A93294

PART NO.	A	B	C	D
KGAVT0501CVT	41-1/8	2	3-1/2	27-1/4
KGAVT0601CVT	46-3/4	3	4-1/2	31-7/8

CONDENSATE
TRAP

A93026

CONDENSATE TRAP

SPECIFICATIONS

UNIT SIZE		024040	036040	036060	048060	036080	048080	060080	048100	060100	060120
RATINGS AND PERFORMANCE											
Input Btuh*		40,000	40,000	60,000	60,000	80,000	80,000	80,000	100,000	100,000	120,000
Output Capacity†	Nonweatherized (ICS)‡	37,200	37,200	55,800	55,800	74,400	74,400	74,400	93,000	93,000	111,600
AFUE%†	Nonweatherized (ICS)‡	91.5	91.5	91.5	91.5	91.5	91.5	91.5	91.5	91.5	91.5
California Seasonal Efficiency (CSE)†		85.0	85.1	86.7	87.0	87.8	87.1	87.0	87.6	88.0	88.2
Certified Temperature Rise Range °F		30—60	15—45	30—60	20—50	40—70	30—60	20—50	40—70	30—60	40—70
Certified External Static Pressure	Heating	0.10	0.10	0.12	0.12	0.15	0.15	0.15	0.20	0.20	0.20
	Cooling	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Airflow CFM**	Heating	760	1305	1305	1380	1345	1285	1950	1190	1705	1650
	Cooling	900	1250	1250	1545	1190	1525	1910	1550	1935	2040
ELECTRICAL											
Units Volts—Hertz—Phase		115—60—1									
Minimum Wire Size		14	14	14	14	14	14	12	14	12	12
Maximum Wire Length (ft)††		52	38	38	29	39	28	35	27	35	32
Maximum Unit Amps		7.1	9.7	9.7	12.7	9.5	13.1	16.1	13.3	16.1	17.6
Operating Voltage Range Min—Max‡‡		104—127									
Maximum Fuse Size or Ckt Bkr Amps***		15	15	15	15	15	15	20	15	20	20
Transformer (24v)		40VA									
External Control	Heating	12VA									
	Cooling	21VA									
Power Available		21VA									
Air Conditioning Blower Relay		Standard									
CONTROLS ◦											
Limit Control		SPST									
Heating Blower Control (Off Delay)		Selectable 90, 135, 180, or 225 seconds									
Burners (Monoport)		2	2	3	3	4	4	4	5	5	6
Gas Connection Size		1/2-in. NPT									
GAS CONTROLS											
Gas Valve (Redundant)	Manufacturer	White-Rodgers									
	Min Inlet Pressure (in. wc.)	4.5 (Natural Gas)									
	Max Inlet Pressure (in. wc.)	13.6 (Natural Gas)									
Ignition Device		Hot Surface									
BLOWER DATA											
Direct-Drive Motor HP—Type (PSC)		1/5	1/3	1/3	1/2	1/3	1/2	3/4	1/2	3/4	3/4
Motor Full Load Amps		4.9	5.8	5.8	7.9	5.8	7.9	11.1	7.9	11.1	11.1
RPM (Nominal)—Speeds		1075—3	1075—4								
Blower Wheel Diameter x Width		10 x 6	10 x 7	10 x 7	11 x 8	10 x 7	11 x 8	11 x 10	11 x 8	11 x 10	11 x 10
Filter Size—Permanent Washable		(1) 16 x 25 x 1						(1) 20 x 25 x 1			(2) 16 x 25 x 1
FACTORY-AUTHORIZED AND LISTED, DEALER-INSTALLED OPTIONS											
Twinning Kit		N/A						KGATW0201HSI	N/A	KGATW0201HSI	
Side Filter Rack (With Washable Filter)		KGAFR0106ALL									
Return Filter Plenum (With Washable Filters)		KGARP0101ALL									
Downflow Base		KGASB0201ALL									
Return-Air Duct Flange Kit		KGARF0110ALL (Used on Downflow or Horizontal)									
Vent Termination Kit (Bracket Only for 2 Pipes)		2-in.—KGAVT0101BRA				3-in.—KGAVT0201BRA					
Concentric Vent Termination Kit (Single Exit)		2-in.—KGAVT0501CVT				3-in.—KGAVT0601CVT					
Side-Wall Vent Termination Cover		2-in.—KGAVT0301COV				3-in.—KGAVT0401COV					
Gas Conversion Kit—Natural-to-Propane		KGANP2001ALL									
Gas Conversion Kit—Propane-to-Natural		KGAPN1601ALL									

* Gas input ratings are certified for elevations to 2000 ft. For elevations above 2000 ft, reduce ratings 4 percent for each 1000 ft above sea level. In Canada, from 2000 to 4500 ft above sea level, derate the unit 10 percent.

† Capacity and AFUE in accordance with U.S. Government DOE test procedures. California Seasonal Efficiency based on California-specified procedures.

‡ ICS—Isolated Combustion System

** Air delivery above 1800 cfm requires that both sides, a combination of 1 side and bottom, or bottom only of the furnace be used for return air. A filter is required for each return-air supply.

†† Length shown is measured 1 way along wire path between unit and service panel for maximum 2 percent voltage drop.

‡‡ Permissible voltage limits for proper furnace operation.

*** Time-delay fuse is recommended.

PSC—Permanent Split Capacitor

N/A—Not Applicable



MEETS DOE RESIDENTIAL CONSERVATION SERVICES PROGRAM STANDARDS.

Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

COMBUSTION-AIR AND VENT PIPING
MAXIMUM ALLOWABLE PIPE LENGTH (FT)

ALTITUDE ABOVE SEA LEVEL (FT)	UNIT SIZE	TERMINATION TYPE	PIPE DIA (IN.)	NUMBER OF 90° ELBOWS					
				1	2	3	4	5	6
0 to 2000	040	2 Pipe or 2-In. Concentric	1*	5	5	0	0	0	0
			1-1/2	70	70	70	70	70	70
	060	2 Pipe or 2-In. Concentric	1-1/2	35	30	20	15	15	10
			2	70	70	70	70	70	70
	080	2 Pipe or 2-In. Concentric	1-1/2	10	5	0	0	0	0
			2	65	60	55	45	40	35
			2-1/2	70	70	70	70	70	70
	100	2 Pipe or 2-In. Concentric	2	10	5	0	0	0	0
		2 Pipe or 3-In. Concentric	2-1/2	65	60	50	45	35	25
	120		2 Pipe or 3-In. Concentric	3	70	70	70	70	70
2-1/2		10		5	5	0	0	0	
3		40		35	30	15	5	0	
2001 to 3000	040	2 Pipe or 2-In. Concentric	3*	70	70	70	70	70	70
			1-1/2	70	70	70	70	66	61
	060	2 Pipe or 2-In. Concentric	1-1/2	31	26	16	11	11	6
			2	70	67	66	61	61	61
	080	2 Pipe or 2-In. Concentric	2	58	53	48	39	34	29
			2-1/2	70	70	70	70	70	70
	100	2 Pipe or 3-In. Concentric	2-1/2	58	53	44	39	29	20
			3	70	70	70	70	70	70
	120	2 Pipe or 3-In. Concentric	3	35	30	25	11	2	0
			3*	63	62	62	61	61	61
3001 to 4000	040	2 Pipe or 2-In. Concentric	3*	63	62	62	61	61	61
			1-1/2	70	70	67	66	61	56
	060	2 Pipe or 2-In. Concentric	1-1/2	29	24	15	10	9	0
			2	68	63	62	57	57	56
	080	2 Pipe or 2-In. Concentric	2	55	50	45	36	31	26
			2-1/2	70	70	70	70	70	70
	100	2 Pipe or 3-In. Concentric	2-1/2	55	50	41	36	26	17
			3	70	70	70	70	70	70
	120	2 Pipe or 3-In. Concentric	3	33	28	23	10	0	0
			3*	59	59	58	57	57	56
4001 to 5000†	040	2 Pipe or 2-In. Concentric	3*	59	59	58	57	57	56
			1-1/2	70	67	62	62	57	52
	060	2 Pipe or 2-In. Concentric	1-1/2	27	22	13	8	7	0
			2	64	59	58	53	52	52
	080	2 Pipe or 2-In. Concentric	2	52	47	42	33	28	23
			2-1/2	70	70	70	70	70	70
	100	2 Pipe or 3-In. Concentric	2-1/2	52	47	38	33	24	15
			3	70	70	70	70	70	70
	120	2 Pipe or 3-In. Concentric	3	31	26	21	8	0	0
			3*	56	55	54	53	52	52
5001 to 6000†	040	2 Pipe or 2-In. Concentric	3*	56	55	54	53	52	52
			1-1/2	68	63	58	57	52	47
	060	2 Pipe or 2-In. Concentric	1-1/2	26	21	12	7	6	0
			2	60	55	54	49	48	47
	080	2 Pipe or 2-In. Concentric	2	49	44	39	30	25	20
			2-1/2	70	70	70	70	70	70
	100	2 Pipe or 3-In. Concentric	2-1/2	49	44	35	30	21	12
			3	70	70	70	70	70	70
	120	2 Pipe or 3-In. Concentric	3	29	24	19	7	0	0
			3*	53	52	50	49	48	47
6001 to 7000†	040	2 Pipe or 2-In. Concentric	3*	53	52	50	49	48	47
			1-1/2	64	59	54	53	48	43
	060	2 Pipe or 2-In. Concentric	1-1/2	24	19	10	5	0	0
			2	57	52	50	45	44	43
	080	2 Pipe or 2-In. Concentric	2	46	41	36	27	22	17
			2-1/2	70	70	68	67	66	64
	100	2 Pipe or 3-In. Concentric	2-1/2	46	41	32	27	18	10
			3	70	70	68	67	66	64
	120	2 Pipe or 3-In. Concentric	3	27	22	17	5	0	0
			3*	49	48	47	45	44	43

See notes on page 5.

MAXIMUM ALLOWABLE PIPE LENGTH (FT) Continued

ALTITUDE ABOVE SEA LEVEL (FT)	UNIT SIZE	TERMINATION TYPE	PIPE DIA (IN.)	NUMBER OF 90° ELBOWS					
				1	2	3	4	5	6
7001 to 8000†	040	2 Pipe or 2-In. Concentric	1-1/2	60	55	50	48	43	38
	060	2 Pipe or 2-In. Concentric	1-1/2	22	17	8	0	0	0
			2	53	48	46	41	40	38
	080	2 Pipe or 2-In. Concentric	2	42	37	32	24	19	14
			2-1/2	66	65	63	62	60	59
	100	2 Pipe or 3-In. Concentric	2-1/2	42	37	29	24	16	7
			3	66	65	63	62	60	59
120	2 Pipe or 3-In. Concentric	3	25	20	15	0	0	0	
		3*	46	44	43	41	40	38	
8001 to 9000†	040	2 Pipe or 2-In. Concentric	1-1/2	55	50	45	44	39	34
	060	2 Pipe or 2-In. Concentric	1-1/2	20	15	7	0	0	0
			2	49	44	42	37	35	34
	080	2 Pipe or 2-In. Concentric	2	39	34	29	21	16	11
			2-1/2	62	60	58	56	55	53
	100	2 Pipe or 3-In. Concentric	2-1/2	39	34	26	21	13	5
			3	62	60	58	56	55	53
120	2 Pipe or 3-In. Concentric	3	23	18	13	0	0	0	
		3*	43	41	39	37	35	34	
9001 to 10,000†	040	2 Pipe or 2-In. Concentric	1-1/2	51	46	41	39	34	29
	060	2 Pipe or 2-In. Concentric	1-1/2	18	13	5	0	0	0
			2	45	40	38	33	31	29
	080	2 Pipe or 2-In. Concentric	2	36	31	26	18	13	8
			2-1/2	57	55	53	51	49	47
	100	2 Pipe or 3-In. Concentric	2-1/2	36	31	23	18	10	2
			3	57	55	53	51	49	47
120	2 Pipe or 3-In. Concentric	3	21	16	11	0	0	0	
		3*	39	37	35	33	31	29	

* Wide radius elbow

† Vent sizing for Canadian installations above 4500 ft (1370 m) above sea level are subject to acceptance by the local authorities having jurisdiction.

NOTES:

1. Do not use pipe size greater than those specified in table or incomplete combustion, flame disturbance, or flame sense lockout may occur.
2. Size both the combustion-air and vent pipe independently, then use the larger diameter for both pipes.
3. Assume two 45° elbows equal one 90° elbow. Long radius elbows are desirable and may be required in some cases.
4. Elbows and pipe sections within the furnace casing and at the vent termination should not be included in vent length or elbow count.
5. The minimum pipe length is 5 ft for all applications.

MAXIMUM ALLOWABLE PIPE LENGTH (FT) IN WINTER DESIGN TEMPERATURE AMBIENT*

UNIT SIZE	WINTER DESIGN TEMP °F	MAXIMUM PIPE DIA (IN.)	INSULATION THICKNESS (IN.)†				
			0	3/8	1/2	3/4	1
040	20	2	31	56	63	70	70
	0	2	16	34	39	47	54
	-20	2	9	23	27	34	39
060	20	2	45	70	70	70	70
	0	2	25	51	58	70	70
	-20	2	16	36	42	51	60
080	20	2-1/2	55	70	70	70	70
	0	2-1/2	31	61	69	70	70
	-20	2-1/2	20	43	49	61	70
100	20	3	61	70	70	70	70
	0	3	33	65	70	70	70
	-20	3	20	45	52	65	70
120	20	3	70	70	70	70	70
	0	3	40	70	70	70	70
	-20	3	26	55	64	70	70

* Pipe length (ft) specified for maximum vent pipe lengths located in unconditioned spaces. Vent pipes located in unconditioned space cannot exceed the total allowable pipe length as specified in maximum allowable pipe length table.

† Insulation thickness based on R value of 3.5 per in.

This unit complies with CAN/CGA 2.3 M86, CAN/CSA C22.2 No. 0-M91, CSA C22.2 No.3-1988 standards.

This appliance is equipped only for altitudes 0 - 2,000 ft (0-610 m) for use with natural gas and propane. A conversion kit, supplied by the manufacturer, shall be used to convert to the alternate fuel or elevation.

This direct-vent, forced-air furnace is for indoor installation in a building constructed on site. For installation in alcove or closet at minimum clearances from combustible material as shown below, minimum front clearance for service is 30 inches. (762 mm).

Upflow furnace only: For installation on combustible flooring.

Downflow furnace only: For installation on non-combustible floors only. For installation on combustible floors only when installed on special base No. KGASB0201ALL.

Horizontal position: Line contact is permissible only between lines formed by intersections of top and two sides of furnace jacket, and building joists, studs, or framing. This furnace is for use with schedule-40 PVC, PVC-DWV, or ABS-DWV pipe, and must not be vented in common with other gas-fired appliances. Construction through which vent/air intake pipes may be installed is maximum 24 inches (600 mm), minimum 3/4 inches (19 mm) thickness (including roofing materials).

Special venting system required. In Canada use certified venting system provided by furnace manufacturer. See Installation Instructions provided with furnace. Flue gas temperature 131°F (55°C) vent pressure positive.

MINIMUM CLEARANCE TO COMBUSTIBLE MATERIAL

INCHES

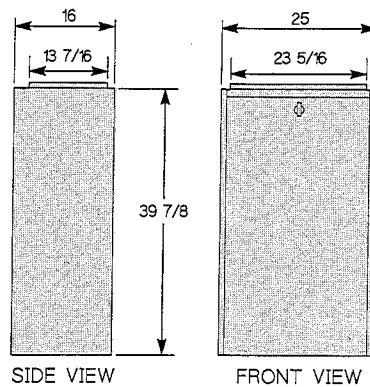
TOP	SIDES	BACK	FRONT	VENT
1	0	0	3	0
1	0	0	3	0
1	1 *	0	3	0

UPFLOW

DOWNFLOW

HORIZONTAL

* Clearance shown is for air inlet and air outlet end.



SIDE VIEW

FRONT VIEW

*Includes 2 framed washable filters.

ACCESSORIES

RETURN-AIR

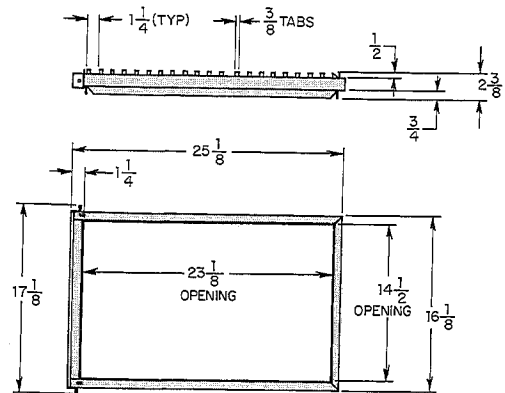
FILTER PLENUM*



SIDE

FILTER

RACK*



*Includes a framed washable filter.

A80199

AIR DELIVERY—CFM* (WITH FILTER)

UNIT SIZE	BLOWER MOTOR HP	EXTERNAL STATIC PRESSURE (in. wc)								
		SPEED	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
024040	1/5 PSC	High	1085	1045	995	945	900	830	755	665
		Med-High	870	825	785	740	695	645	570	500
		Med-Low	760	715	675	630	575	510	455	395
036040	1/3 PSC	High	1505	1445	1385	1320	1250	1170	1090	1005
		Med-High	1415	1360	1295	1235	1170	1100	1010	920
		Med-Low	1270	1230	1170	1120	1050	985	905	810
		Low	1080	1045	1005	965	915	855	785	705
036060	1/3 PSC	High	1505	1445	1385	1320	1250	1170	1090	1005
		Med-High	1415	1360	1295	1235	1170	1100	1010	920
		Med-Low	1270	1230	1170	1120	1050	985	905	810
		Low	1080	1045	1005	965	915	855	785	705
048060	1/2 PSC	High	1700	1695	1640	1580	1545	1450	1380	1310
		Med-High	1500	1465	1435	1385	1355	1300	1250	1185
		Med-Low	1325	1295	1265	1230	1190	1150	1105	1050
		Low	1205	1170	1145	1110	1080	1035	990	950
036080	1/3 PSC	High	1485	1415	1340	1270	1190	1110	1010	930
		Med-High	1400	1340	1265	1220	1125	1040	950	855
		Med-Low	1285	1220	1170	1115	1050	975	900	810
		Low	1140	1105	1050	1005	945	875	800	715
048080	1/2 PSC	High	1750	1685	1635	1575	1525	1445	1380	1310
		Med-High	1495	1455	1405	1355	1305	1250	1185	1120
		Med-Low	1310	1260	1225	1170	1125	1095	1040	980
		Low	1135	1105	1075	1040	995	955	910	860
060080	3/4 PSC	High	2285	2185	2095	2010	1910	1810	1705	1590
		Med-High	2085	2005	1940	1865	1770	1685	1580	1485
		Med-Low	1810	1750	1705	1605	1575	1505	1415	1330
		Low	1585	1555	1520	1485	1425	1345	1270	1200
048100	1/2 PSC	High	1760	1705	1655	1610	1550	1450	1385	1300
		Med-High	1470	1445	1410	1370	1320	1270	1175	1115
		Med-Low	1255	1190	1175	1135	1090	1065	1005	955
		Low	1110	1075	1050	1030	985	955	895	840
060100	3/4 PSC	High	2270	2170	2095	2020	1935	1855	1750	1640
		Med-High	2035	1985	1920	1830	1750	1675	1585	1480
		Med-Low	1750	1705	1655	1600	1515	1450	1380	1305
		Low	1410	1395	1390	1365	1335	1280	1215	1150
060120	3/4 PSC	High	2345	2260	2190	2125	2040	1995	1865	1720
		Med-High	1970	1910	1865	1805	1735	1655	1585	1470
		Med-Low	1705	1650	1600	1570	1505	1465	1390	1290
		Low	1470	1445	1425	1390	1340	1280	1225	1160

*Air delivery above 1800 CFM requires that both sides, a combination of 1 side and bottom, or bottom only of the furnace be used for return air. A filter is required for each return-air supply.



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

UNIT MUST BE INSTALLED IN ACCORDANCE
WITH INSTALLATION INSTRUCTIONS